Table 1 – Nominal (planning) specifications for laser amplifiers

Parameters	Short Term Goals for IIP (Breadboard Demo)	Long Term Goals (Spaceborne)	Comments
Center Wavelengths	1529.6 ± 0.5 nm AND 1572.3 ± 0.5 nm		
Output Pulse Energy	> 4 mJ @ 1529.6 nm > 4 mJ @ 1572.3 nm		Maybe met by either a single laser or no more than 8 lasers incoherently combined with footprints to overlap in the far field to reach the energy level at each wavelengths.
Pulse Repetition Rate (PRF)	8-10 kHz		
Beam Quality	Collimated, < 1.4 DL, Beam Divergence ~ 100 µrad		DL – diffraction limited
Pulse Width	~ 40 nsec to 1 µsec		Shorter pulses within this range are preferred
Input from Master Oscillator	~20 µJ per pulse		MO to be provided as GFE
Overall Efficiency	> 5%	> 7%	Wall plug efficiency
Polarization Maintaining	Yes		With 20 dB input PER
Off Time Between Pulses	100 – 125 µsec		
Optical Linewidth	< 20 MHz at each wavelength		Input Linewidth of < 2 MHz
Spectral Purity	Out of band leakage <40 dB of main pulse in a 2 nm bandwidth		
Gain Flatness vs Wavelength	< 1 dB		
Energy Stability vs Wavelength	< 5 %		Output energy flatness
Output Energy Flatness vs Time	< 1% per hour; <1% in 1 min; <8% in 8 hours		
Output Pointing Stability	N/A	< 10 % of divergence	Beam wander
Output Power Stability	N/A	< 1% in 20 min; < 3% in 8 hours	After warm-up
Orbit Altitude	N/A	~ 500 km	
Radiation Dosage	N/A	~10 krad per year total dose	
Temperature Ranges			
Operate in Spec	10 to 25C		
Operate (not required in Spec)	N/A	5 to 30°C	
Non-Operate (no damage)	N/A	-10 to 50°C	
Maximum Temperature Rate of Change	± 4°C per hour		